

LISTING OF CLAIMS

Claims 1-24 (cancel)

25. (original) An apparatus for producing nitrogen trifluoride, comprising:
a reactor comprising a mixing zone, a reaction zone in fluid communication with said mixing zone, and a product outlet;
a gaseous fluorine feed supply in fluid connection with said mixing zone of said reactor;
a liquid ammonium acid fluoride feed supply in fluid connection with said mixing zone of said reactor;
a working fluid vapor supply in fluid connection with said mixing zone of said reactor; and
at least one nozzle operatively positioned in fluid connection with said working fluid vapor supply upstream of said mixing zone of said reactor.

26. (original) The apparatus of Claim 25, wherein said working fluid vapor supply is a hydrogen halide vapor supply.

27. (original) The apparatus of Claim 26, wherein said working fluid vapor supply is a hydrogen fluoride vapor supply.

28. (original) The apparatus of Claim 25, further comprising a separator in fluid communication with said product outlet of said reactor and operatively positioned to separate a liquid working fluid stream from a gaseous nitrogen trifluoride stream, said separator comprising a working fluid outlet and a nitrogen trifluoride outlet.

29. (original) The apparatus of Claim 25, wherein said working fluid vapor supply comprises:
a liquid working fluid supply; and
a heat exchanger having an inlet and an outlet, said inlet of said heat exchanger being in fluid communication with said liquid working fluid supply, said outlet being in fluid communication with said nozzle.

30. (original) The apparatus of Claim 29, wherein said heat exchanger is positioned with said reactor.

31. (original) The apparatus of Claim 25, wherein said reactor further comprises at least one internal partition defining a flow path between the mixing zone and the reaction zone within said reactor.